

Supplementary Information

Figure S1. Anion-exchange chromatography (Macro-Prep DEAE) of crude fucoidan (**SmF**) from *S. mcclurei*.

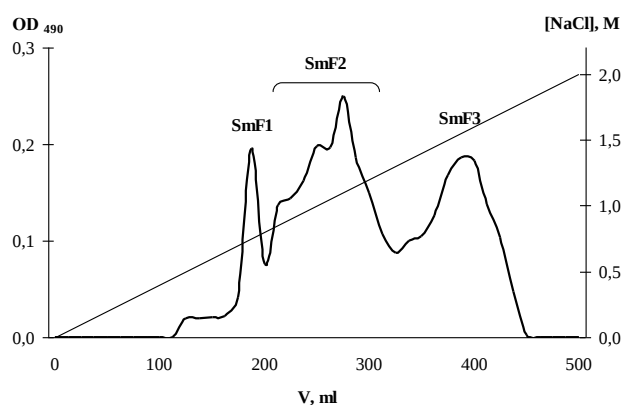


Figure S2. ¹³C NMR spectra of native **SmF3** (A) and desulfated **SmF3-DS** (B) fucoidans from brown seaweed *S. mcclurei*.

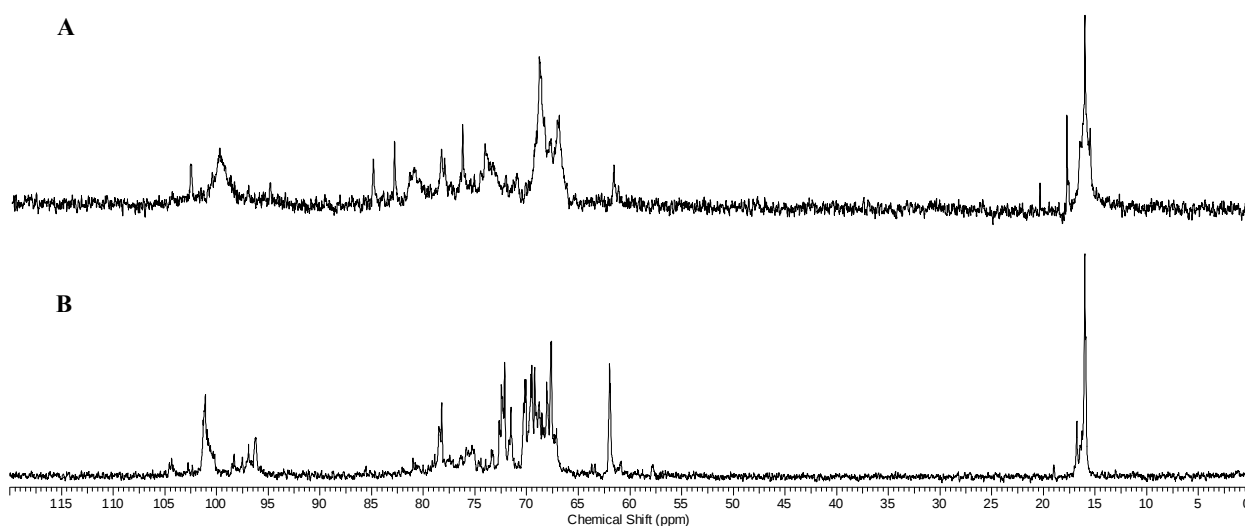


Figure S3. Negative-ion ESIMS of the **SmF3** fucoidan after autohydrolysis.

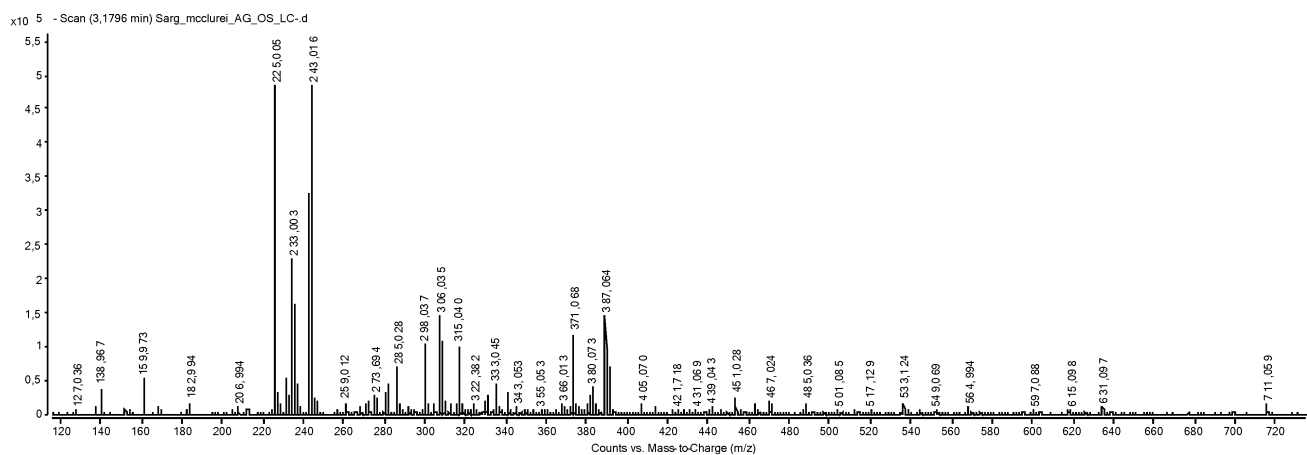
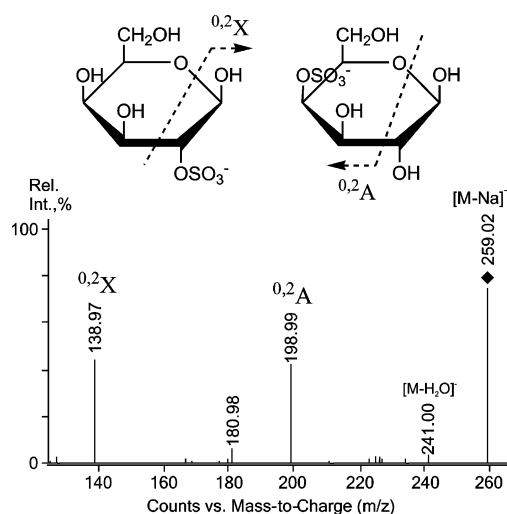


Figure S4. Negative-ion tandem CID ESIMS of the ion at m/z 259 (monosulfated Gal).**Figure S5.** Cytotoxicity of the fucoidan fractions from the brown alga *Sargassum mcclurei*. DLD-1 cells (1.0×10^4) were incubated with investigated fucoidan fractions (200 $\mu\text{g/mL}$) for 24/48 h at 37 °C in a 5% CO_2 incubator. Compound cytotoxicity was estimated using the MTS assay. Data are represented as the mean $\pm$ SD as determined from triplicate experiments.